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Northeastern Area
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DIVISION OF FOREST PEST CONTROL

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JACK-PINE BUDWORM EARLY INSTAR LARVAL SURVEY ON THE OTTAWA N.F.
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INTRODUCTION

The jack-pine budworm is a perennial pest of jack and red pine in the Lake States. The damage from defoliation results in growth reduction, top-kill, or tree mortality, depending on the severity of defoliation.

Predictions of budworm outbreaks and defoliation have been inaccurate. To improve the predictions, annual evaluation surveys were inaugurated to determine the following:

1. To determine the degree of budworm population fluctuations during pre-outbreak periods.
2. To determine the effect of previous pine defoliation on the budworm populations.
3. To determine how much defoliation occurs from a given larval population.

This report covers the results of early larval collections made in June, 1969, and compares the populations with egg survey results from the previous fall.

METHODS

The detailed sampling plans are described in the original evaluation plan (Millers, 1968). In general, it follows the techniques described by Foltz et al., 1968. Briefly, 4 branches are sampled from each of 10 trees (2 from mid-crown and 2 from lower crown) in a cluster at preselected locations. During egg survey in fall, 36 inch long branches were examined. For larval surveys, 18 inch long branches are sampled. Summer Students, FPC, and a crew at the Toumey Nursery, Watersmeet, Michigan, were responsible for branch examination. The results are expressed as number of budworms (or eggs) per 100 shoots (current growth tips) per plot. More than 40 budworms per 100 tips can be expected to cause heavy defoliation.



RESULTS

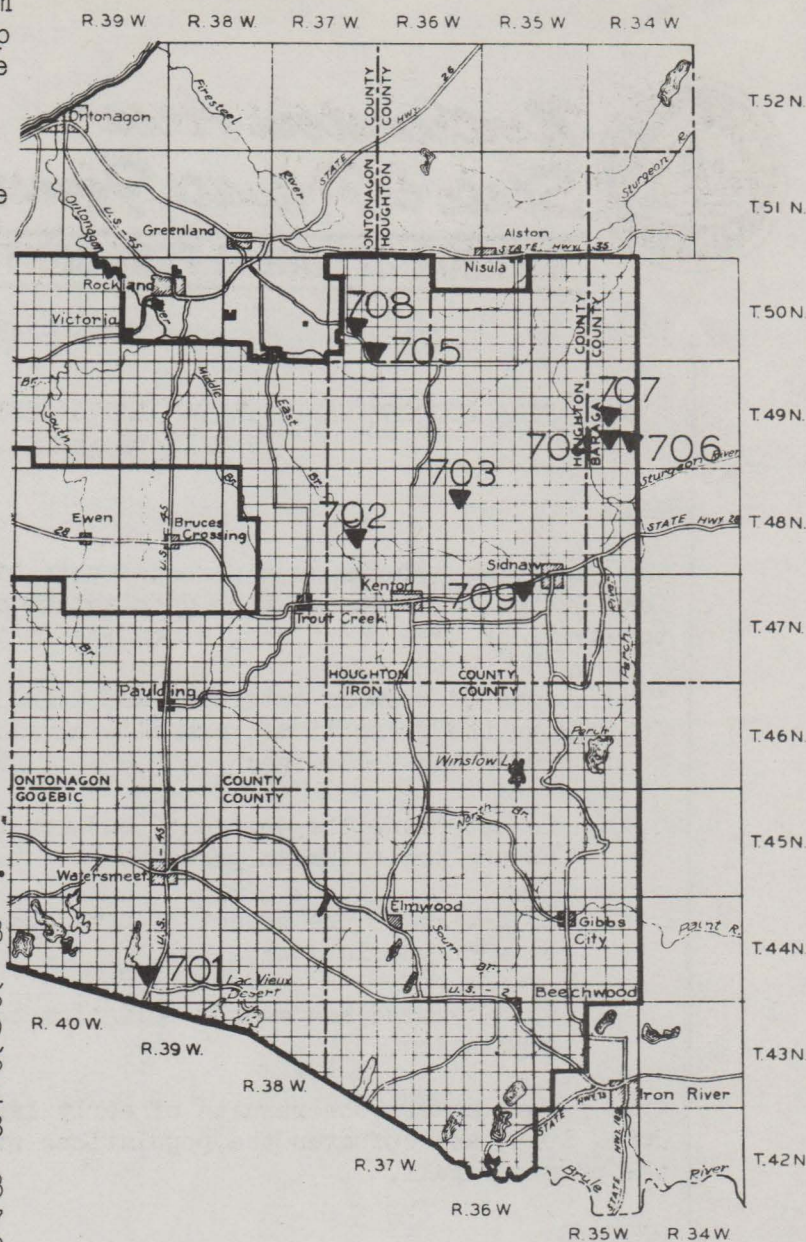
Table 1 shows the current budworm situation on the Forest. The map shows the locations of the sample clusters.

The budworm populations are at low levels in all areas that have been visibly defoliated during the past 3 years.

The highest population is present near Lac Vieux Desert (Cluster 701), where moderate defoliation can be expected. Moderate budworm populations are present north of Kenton (Clusters 702 and 703), where light to moderate defoliation is expected.

TABLE I. JACK-PINE BUDWORM POPULATIONS ON THE OTTAWA NATIONAL FOREST

CLUSTER No.	FALL, 1968 Eggs/100 tips	SPRING, 1969 Larvae/100 t.
701	96	27.58
702	42	19.75
703	80	16.39
705	19	3.95
708	55	1.91
709	141	2.93
704	50	7.28
706	41	3.27
707	60	5.08



REFERENCES

- FOLTZ, J. L., F. B. Knight, D. C. Allen, A. J. Mattson, Jr. 1968. A technique for sampling populations of the jack-pine budworm. Forest Service 14(3): 277-281
- MILLERS, I. 1968. Evaluation plan for jack-pine budworm larval populations on National Forests in the Lake States. USDA, Forest Service, NA S&PF, St. Paul Field Office. 5230. 6 pp.